

SPECIFICATION

Please replace the paragraph on line 9 of page 1 with the following amended paragraph:

A multi-carrier transmission system is one that employs more than one carrier for transmission of data using Frequency Division Multiplexing (FDM). Generally, to transmit a given bit stream over a multi-carrier transmission system, the bit stream is converted into parallel data. In a Quadrature Amplitude Modulation system, the parallel data may be used to choose a constellation point (a QAM symbol). These constellation points may be scaled by the fraction of the power they are allocated. The scaled constellation points are then modulated, i.e., converted from frequency to time domain signal and are transmitted over a channel such as a telephone line. The bit rate (number of bits allocated to each carrier) and the fraction of total power allocated to each carrier are variables in such a system. The number of bits per carrier determines the size of the constellation for that carrier. The fractional power is the portion of total power for all carriers which is allocated to any given carrier.

Please replace the paragraph on line 21 of page 9 with the following amended paragraph:

The power allocation is continued ~~til~~ until the excess power gets exhausted or none of the carriers can increase the bit rate without violating power constraints. The net bit rate can be further increased if there are constraints on the minimum bit allocation per carrier. The algorithms checks if it is possible to decrease  $x$  bits in some carrier and get  $k (> x)$  bits in some other carrier which originally had no allocation by redistributing the power.